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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In the application of Patrick W. Kelley
Serial No: 10/691,416
Filed: 10/22/2003
For: Plastic Logs

Art Unit: 1775
Examiner: Timothy M. Speer

Transmittal of Corrected Appeal Brief
and Renewed Petition for Refund of Appeal Fee

Mail Stop Appeal Brief-Patents
Commissioner for Patents
Via facsimile to
Central Fax Number 571-273-8300

Responsive to the Notification of Non-Compliant Appeal Brief mailed 08/07/2007, appellant submits herewith a Corrected Appeal Brief with a revised Section 5 - the Summary of Claimed Subject Matter – in which the explanation of the subject matter in the independent claims is supported by reference to the specification by page and line number.

Inasmuch as a fee for filing a brief in support of an appeal has already been paid in this application, the Commissioner is again requested to not charge a second fee for filing a brief or, alternatively, to refund of the payment of duplicate fees to the address noted on the payment form.

The undersigned hereby certifies that this communication transmitting the Corrected Appeal Brief is being timely filed with the USPTO by facsimile transmission on September 7, 2007 within the one month or thirty days time limit set out in the Notification mailed on August 7, 2007.

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Docket No: PWK-02-1-D

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In the application of Patrick W. Kelley
Serial No: 10/691,416
Filed: 10/22/2003
For: Plastic Logs

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Corrected APPELLANT'S BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal from the Final Rejection of claims 1 and 4-13 in the above-described patent application. Notice of Appeal in this application was filed with the Patent & Trademark Office on May 4, 2007, setting the two month period for filing the brief to expire on July 4, 2007.

1. Real Party in Interest

The real party in interest by assignment from the named-inventor is Sund & Gorman Company, a Pennsylvania corporation having a place of business in Saylorsburg, Pennsylvania.

2. Related Appeals and Interferences

The Appellant is unaware of any other Appeals or Interferences related to this Appeal.

3. Status of Claims

Claims 1 and 4-13 are pending. Claims 2 and 3 have been cancelled without prejudice and stand withdrawn from consideration. Claims 1 and 5 are independent. Claims 4 and 6-9 are dependent from claim 1. Claims 10-13 are dependent from claim 5. All the claims stand finally rejected under 35 USC 103(a). Appellant appeals all of the rejections of each of the claims.

4. Status of Amendments

Appellant understands that the amendment of claims 8 filed with the Response filed on Sept 9, 2006 has been entered and is reflected in the Claims Appendix.

5. Summary of Claimed Subject Matter

Plastic products for fencing and lumber are common real world architectural products, e.g. for yard privacy fencing and deck materials. Plastic products are also common in simulated

and toy products, e.g. for toy log houses. Despite the ubiquity of "plastic logs" the subject matter of this invention is plastic logs that are characterized by a novel combination of materials of construction, dimensions, and structural properties that make the plastic logs uniquely suitable for durable post and rail fencing applications, e.g. for corralling horses, an application previously demanding tougher materials of construction like natural wood.

The following concise explanation of the subject matter defined in each of the independent claims involved in the appeal makes reference to the specification by page and line number. In independent claim 1 the plastic logs are characterized by the novel combination of

(a) having an average diameter greater than 2 inches, [page 2, line 5]

(b) having a flexural modulus at 40 °F of at least 70,000 psi , [page 3, lines 21-22]

(c) having a diameter deviation in the range of 2 to 60% [page 3, lines 9-14], and

(d) comprising at least 80% thermoplastic materials comprising at least one polyolefin selected from the group consisting of polyethylene and polypropylene [page 4, lines 2-5].

In dependent claim 2 the plastic logs of claim 1 are further characterized as comprising at least one other polymeric material having a melt temperature at least 20 °C. higher than the melt temperature of said polyolefin[page 4, lines 6-8].

In independent claim 5 the plastic logs are alternatively characterized as

(a) having deviations in diameter simulating a natural wood log [page 3, lines 9-10],

(b) comprising at least 80% polypropylene [page 4, lines 2-5],

(c) having an average diameter greater than 2 inches [page 2, line 5],

(d) having a flexural modulus at 40 °F of at least 90,000 psi [page 3, lines 21-22], and

(e) having a diameter deviation defined by the algorithm ((D-d)/D)x100 in the range of 2 to 60%, where D is the maximum diameter and d is the minimum diameter [page 3, lines 9-15].

Plastic logs for post and rail fencing applications of independent claims 1 and 3 are more particularly characterized by the further limitations of dependent claims 6-13. For instance claims 6 and 10 characterized logs having a length in the range of 5 to7 feet [page 7, lines 1-3]; claims 8 and 12 characterize logs having a length in the range of 8 to10 feet [page 7, lines 1-3]; and claims 7, 9, 11 and 13 characterize logs having an average diameter of not less than 3.5 inches [page 6, lines 14-16 and 18-20].

6. Grounds of Rejection to be Reviewed on Appeal

All of the appealed claims stand rejected under 35 USC 103(a) as being unpatentable over various combinations of US 5,253,458 (Christian), US 4,913,473 (Bonnema) and US 5,728,330 (Erwin).

6.(a) First Ground of Rejection – obvious over Christian in view of Bonnema

Claims 1 and 4-13 stand rejected under 35 USC 103(a) as being unpatentable over US 5,253,458 (Christian) in view of US 4,913,473 (Bonnema).

6.(b) Second Ground of Rejection – obvious over Christian in view of Erwin

Claims 1 and 4-13 stand rejected under 35 USC 103(a) as being unpatentable over US 5,253,458 (Christian) in view of US 5,728,330 (Erwin).

6.(c) Third Ground of Rejection – obvious over Erwin

Claims 1 and 4-13 stand rejected under 35 USC 103(a) as being unpatentable over US 5,728,330 (Erwin).

7. Argument

7.(a) Table of Authorities

Table of Authorities cited in the arguments against the three obviousness rejections:

Graham v. John Deere, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966)

KSR Int'l Co. v. Teleflex, Inc., No 04-1350 (U.S. April 30, 2007)

Alza Corporation v. Mylan Laboratories (Fed Cir, Sept 2006)

7.(b) General argument on the Obviousness Rejections as applied to claims 1 and 4-13

The issue is whether the subject matter of claims 1 and 4-13 would have been obviousness to a person of ordinary skill in the art from reading the primary reference alone or in combination with a cited secondary reference.

The law for determining obviousness as set out in *Graham v. John Deere*, as amplified by the Supreme Court in *KSR v. Teleflex*, requires four factual inquiries (a) determining the scope and content of the prior art, (b) ascertaining the difference between the prior art ant the claims in issue, (c) resolving the level of skill in the art, and (d) evaluating evidence of secondary consideration.

The scope and content of the references is set out below together with the clear differences between each of the references and the claimed subject matter. In summary, the differences are that none of the references teach the claimed invention. And, none of the references teach or suggest modifying one of the other references in a way to supplement the deficiencies of the other references.

The *KSR v. Teleflex* decision did not totally reject the use of the teaching, suggestion, motivation test as a factor in the obviousness analysis. More importantly, the *KSR v. Teleflex* decision did reinforce the requirement for explicitly establishing objective evidence of any general or common knowledge in the art that is would be brought to bear on the issue of obviousness.

7.(b) Specific Argument on the First Obviousness Rejections

The issue is whether the subject matter of claims 1 and 4-13 would have been obviousness to a person of ordinary skill in the art from reading Christian in view of Bonnema.

The primary reference in rejecting claims 1 and 4-13 is US 5,253,458 (Christian) which is directed to a log and panel pre-fabricated house structure where the disclosed logs are various round or square tubular-shaped logs suitable for building a structure (**obviously larger than a 2 inch diameter log use for a fence post or rail**). Although the Christian logs may be precast with a "simulated log design to include knots, cracks and wood grain", the Christian logs have a substantially uniform surface dimension (diameter) over their length to allow stacking to form a wall (**obviously not having a diameter deviations in the range of 2 to 60%**). There is no indication that the simulated knots, cracks and wood grain are anything more than embossed features on an tube of uniform diameter. The Christian "logs" comprise sections of polyvinyl chloride (PVC) tubing filled with a hard cast foam and optionally reinforced with a steel beam (**not at least 80% thermoplastic materials comprising at least one polyolefin selected from the group consisting of polyethylene and polypropylene**). Christian is clearly teaching logs for building structures like log homes using a simulated log rather than a natural log. In a log home, the logs are stacked on one another and receive support form one another (**with no explicit need for having a flexural modulus at 40 °F of at least 70,000 psi**). There is no apparent requirement for a specific flexural modulus when Christian's logs are supported by and bolted to adjacent logs.

The secondary reference US 4,913,473 (Bonnema) discloses large diameter, double-walled plastic pipe with interlocking ends; see figures1-7. The Bonnema pipe is flexible corrugated pipe. The Bonnema disclosure provides no suggestion for use of the corrugated pipe or its materials of construction in either simulated logs for building structures or in plastic logs of claim 1 for post and rail applications. Yet, the Examiner argues that it would have been obvious to a person of ordinary skill in the art at the time of the invention to substitute polyethylene or polypropylene thermoplastic that are disclosed in Bonnema for the PVC used in the simulated log taught by Christian

> "since the reference specifically teaches that polypropylene or polyehylene may be substituted for PVC as a suitable material for making plastic pipes and because the Christain reference discloses that such plastic pipes are used to make the simulated logs". Office Action of 12/04/2006 at page 2

As contrasted to the simulated logs disclosed by Christian the logs of this invention are characterized in claim 1 by the novel combination of

(a) having an average diameter greater than 2 inches,

(b) having a flexural modulus at 40 °F of at least 70,000 psi ,

(c) having a diameter deviation in the range of 2 to 60% , and

(d) comprising at least 80% thermoplastic materials comprising at least one polyolefin selected from the group consisting of polyethylene and polypropylene.

And, Bonnema discloses corrugated pipe that apparent has no properties suitable for use as a fence post or rail.

Appellant submits that the level of skill in the art of designing plastic logs is high, e.g. at least a PhD level in materials engineering or years of experience in plastics technology.

Appellant submits there is no clear basis for an obviousness rejection in view of the many distinctions between the cited references and the claimed invention.

More particularly the materials of the cited reference are taught to have specific properties that are not amenable to the intended use of the plastic logs of the claimed subject matter. Clearly the plastic material described by the claims would not be taught or suggested to a person of ordinary skill in the art from a reading of either the primary reference (Christian) alone

or in combination with the secondary reference (Bonnema) since the properties of the object of the two references are not practically useful for fence posts.

In making this rejection the Examiner has asserted that a diameter deviation is ornamentation only, serves no mechanical function and thus cannot distinguish over the prior art. Appellant disagrees. To a person of ordinary skill in the art the simulated ornamentation on the Christian pipe is mere ornamentation (an optical illusion). But in the claims of this invention the diameter deviation is a real limitation that is formed in the extrusion process of the plastic log and which serves to distinguish a "plastic log" wih a "real" textured surface from a decorated "plastic pipe".with an embossed simulated surface. A natural log has diameter deviation; a plastic log of the invention has diameter deviation. A simulated log intended for building a structure like a log home does not have diameter deviation and does not suggest a log with diameter deviation. Appellant submits that a person of ordinary skill in the art, given a choice for fencing his yard with pipe having a simulated wood design or a plastic log with actual diameter deviations that provide the appearance of a natural log, would (a) choose the pipe or (b) say that the plastic log is an obvious variation over a pipe. It is true that pipe can be used for fencing, in fact it is a component of chain link fencing, but that does not mean that it is adopted for post and rail fencing or that it would suggest to a person of ordinary skill in the art the plastic logs of this invention that have special utility in post and rail fencing. The point is that the material disclosed by Christian would not serve as a starting point for the claimed subject matter. There is no disclosure by Christina to suggest radical changes to arrive at the claimed subject matter.

The rejection suggests that a person of ordinary skill in the art would say that a plastic pipe with simulated design for use in log buildings are functionally equivalent to plastic logs of this invention because the function of a fence post is mostly to serve as a visual barrier, e.g. a function that even string could provide. If a person of ordinary skill in the art were urged to elect the foam-filled PVC pipe with simulated wood design as a fencing material, appellant submits that it would be rejected because that person of ordinary skill would say " it won't work", i.e. it won't function as a fence, and there would be no motivation to effect changes to make it function as a fence. A piece of 2x4 spruce framing timber would be more suitable. In short, appellant

submits that diameter deviation as used in claim 1 do serve a function in that it defines a plastic log.

Moreover, the selection of materials is critical to performance and there is no motivation in Bonnema that suggests that polypropylene or polyethylene would provide better performance in a plastic log of Christian for use in fencing. There is no disclosure in Bonnema to a person of ordinary skill in the art that teaches or suggests that polypropylene or polyethylene would be superior to PVC in plastic logs of Christian and in such a way to provide a motivation to adapt such a change of materials of construction in a monolithic plastic log that is structurally different from the foam-filled log of Christian. Such disclosure and motivation are missing from Bonnema and Christian and any proposal that they are suggested clearly rests on the impermissible use of hindsight. See *Alza Corporation v. Mylan Laboratories* (Fed Cir, Sept 2006) where the Court of Appeals for the Federal Circuit, a tribunal charged with the judicial supervision of the Patent and Trademark Office, emphasized the requirement for adherence to the *Graham* factors and avoidance of hindsight and resistance to the temptation to read into the prior art the teachings of the invention in issue.

Appellant also traverses the Examiner's suggestion that Christian discloses materials with the same properties as required by the plastic log. Applicant directs the Board's attention to applicant's Communication received by the PTO on October 15, 2004 (attached hereto as Evidence appendix) providing evidence that the properties of materials of construction are significantly different between PVC as used by Christian and polypropylene or polyethylene as used by applicant. For example, PVC has a flexural modulus of 10,000 psi where the claims require a flexural modulus of at least 70,000 psi. Christian does not disclose that the properties of PVC are deficient for any application. There is no indication in the art of record that it would have been obvious to a person of ordinary skill in the art from the disclosure of Christian to make a plastic log with real diameter deviations and substitute the polypropylene or polyethylene for PVD.

Appellant submits that neither Christian nor Bonnema, whether alone or in combination, teaches or suggests the plastic logs characterized by either of independent claims 1 or 5. More

particularly, Appellant submits that a *prima facie* case of obviousness has not been made for the following reasons:

1) Christian does not teach or suggest plastic logs with a diameter deviation limitations of either claim 1 or claim 5;
2) Christian does not teach or suggest plastic logs comprising the materials of construction limitations of either claim 1 or claim 5;
3) there is no motivation or suggestion to combine the cited references; and
4) Christian and Bonnema are in non-analogous arts and do not seek to solve the same problem as Appellant.

Christian does not teach or suggest plastic logs with a diameter deviation limitations of either claim 1 or claim 5.

Appellant submits that a person of ordinary skill in the art looking at Christian's figures would know that Christian's round or square logs must be uniform and smooth so as to permit being stacked to provide a building structure with durable and reliable construction. Christian does disclose that the logs can be "precast with simulated external log design". However, absent any amplification by Christian on its meaning (which is lacking) a person of ordinary skill in the art, knowing how tube or pipe is made and the requirements for stacking would understand the Christian means a decorated surface, e.g. a painted surface, as is common on printed plywood which simulates grain and knots in a smooth surface.

To provide a plastic log commercially suitable for post and rail applications the logs must have a surface that replicates natural logs and without the uniformity required for stacking in a wall panel. Such a surface is characterized in claim 1 as a diameter deviation in the range of 2 to 60% and in claim 5 as a diameter deviation defined by the algorithm ((D-d)/D)x100 in the range of 2 to 60%, where D is the maximum diameter and d is the minimum diameter. These are unique characteristics of roughness that encompass the surfaces produced by the method and apparatus disclosed in Appellant's specification. These are unique characteristics that are quire unlike the smooth surface of extruded pipe used and needed by Christian. These are unique characteristics of roughness that provide a plastic log that is commercially useful as post and rail

fencing. These are unique characteristics of roughness that are not taught or suggested by Christian.

Christian does not teach or suggest plastic logs comprising the materials of construction limitations of either claim 1 or claim 5.

To achieve the structural durabilalty for post and rail fencing Appellant requires that the plastic logs of claim 1 comprises at least 80% thermoplastic materials comprising at least one polyolefin selected from the group consisting of polyethylene and polypropylene.

Christian discloses that the basic log component is PVC tubing which due to its uniformity allows stacking for building panels. The inherent frailty of PVC pipe is overcome by filling the logs with foam or reinforcing with structural steel members. Such structure is not structurally or aesthetically suitable for plastic logs useful for post and rail fencing as characterized by claim 1. There is no suggestion to a person of ordinary skill in the art to effect any modification of the Christian logs to achieve log characterized by claim 1, i.e. comprising at least 80% thermoplastic materials comprising at least one polyolefin selected from the group consisting of polyethylene and polypropylene. As was disclosed in an earlier communication the polyolefins are characterized by unique physical properties of strength, durability and flexural modulus, e.g. at least 70,000 psi at 40 °F, a characteristic that makes them uniquely suitable for plastic logs intended for real world post and rail fencing unlike simulated, toy or model fencing.

Similarly to achieve the structural durability for post and rail fencing Appellant requires that the plastic logs of claim 5 comprises at least 80% polypropylene. As argued above, there is no teaching or suggestion to modify the materials in the Christian logs to use a material comprising at least 80% polypropylene.

7.(c) Specific Argument on the Second Obviousness Rejections

The issue is whether the subject matter of claims 1 and 4-13 would have been obviousness to a person of ordinary skill in the art from reading Christian in view of Erwin.

Erwin fails to supplement the deficiencies of Christian in failing to teach or suggest the plastic logs of claims 1 or 5. What Erwin discloses is a process for manufacturing foam-filled extruded products, e..g the foam-filled plastic pipe of Christian which is referenced at column 1, line 30 of Erwin. Erwin does not teach any of the characteristics of plastic logs. At best Erwin

discloses that polyethylene or polypropylene can be among many of the thermoplastic polymers used in the shell over the foam core of the structure. Erwin does not suggest that the extruded article could be provided with diameter deviations according to claim 1 or that the extruded article could be at least 80% of polyolefin. There is simply no teaching or suggestion in Erwin to lead a person of ordinary skill in the art to the claimed subject matter.

7.(c) Specific Argument on the Third Obviousness Rejections

The issue is whether the subject matter of claims 1 and 4-13 would have been obviousness to a person of ordinary skill in the art from reading Erwin.

As stated above Erwin discloses a process for manufacturing foam-filled extruded products, e.g. the foam-filled plastic pipe of Christian. Erwin does not teach any of the characteristics of plastic logs. There is simply no teaching or suggestion in Erwin to lead a person of ordinary skill in the art to the claimed subject matter.

8. Claims appendix

Appended hereto is a copy of the claims to be reviewed on appeal.

9. Evidence appendix

Attached is applicants communication to the USPTO of October 15, 2005 which includes a table showing the mechanical properties of vinyl polymer (PVC).

10. Related Proceedings appendix

There is no related proceedings appendix.

11. Certificate of Service

There is no certificate of service

In view of the foregoing arguments, it is respectfully requested that the Board of Patent Appeals and Interferences reverse all of the final rejections of the appealed claims 1 and 4-13

Docket No: PWK-02-1-D

Respectfully submitted,

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Claims Appendix

1. A plastic log having an average diameter greater than 2 inches, a flexural modulus at 40 °F of at least 70,000 psi and a diameter deviation in the range of 2 to 60% wherein said log comprises at least 80% thermoplastic materials comprising at least one polyolefin selected from the group consisting of polyethylene and polypropylene.

4 A plastic log of claim 1 further comprising at least one other polymeric material having a melt temperature at least 20 °C higher than the melt temperature of said polyolefin.

5 A plastic log having deviations in diameter simulating a natural wood log comprising at least 80% polypropylene and having an average diameter greater than 2 inches, a flexural modulus at 40 °F of at least 90,000 psi and a diameter deviation defined by the algorithm ((D-d)/D)x100 in the range of 2 to 60%, where D is the maximum diameter and d is the minimum diameter.

6 A plastic log of claim 1 having a length in the range of 5 to 7 feet.

7 A plastic log of claim 6 having an average diameter not less than 3.5 inches.

8 A plastic log of claim 1 having a length in the range of 8 to 10 feet.

9 A plastic log of claim 8 having an average diameter not less than 3.5 inches.

10 A plastic log of claim 5 having a length in the range of 5 to 7 feet.

11 A plastic log of claim 10 having an average diameter not less than 3.5 inches.

12 A plastic log of claim 5 having a length in the range of 8 to 10 feet.

13 A plastic log of claim 12 having an average diameter not less than 3.5 inches.

Evidence Appendix

Attached is a data sheet that was submitted to the USPTO as Exhibit 1 to an amendment filed in October 2004 providing evidence of the mechanical properties of commercial rigid vinyl polymer which has a flexural modulus of 10 ksi (10,000 psi).

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Exhibit 1

MatWeb.com, The Online Materials Database

PolyOne Geon® 87350 Vinyl Compound - Rigid (RPVC)

Subcategory: Polymer; Thermoplastic; Vinyl

Material Notes:

Description/Features:

- Exterior-Weatherable
- UL 94 V0
- UL 94 5VA

Applications:

- General Purpose

Processing Method:

- Extrusion-Sheet

PolyOne First Choice

Disclaimer: Note: The Cell Classification was determined using the notched Izod test with injection molded samples.

Information provided by PolyOne Corporation.

Physical Properties	Metric	English	Comments
Specific Gravity	1.44 g/cc	0.052 lb/in³	ASTM D792
Mechanical Properties			
Hardness, Shore D	82.2	82.2	15 sec; ASTM D2240
Tensile Strength, Yield	43.4 MPa	6290 psi	Type 1 - Rigids, 0.2 in/min; ASTM D638
Tensile Modulus	2.48 GPa	360 ksi	Type 1 - Rigids, 0.2 in/min; ASTM D638
Flexural Modulus	0.0689 GPa	10 ksi	ASTM D790
Flexural Strength	2450 MPa	355000 psi	ASTM D790
Dart Drop, Total Energy	0.12 ft-lb/mil	0.12 ft-lb/mil	Procedure A, 0.125 in Conical Dart, 73°F (23°C); ASTM D4226

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Dart Drop, Total Energy	0.24 ft-lb/mil	0.24 ft-lb/mil	Procedure B, 0.125 in Conical Dart, 73°F (23°C); ASTM D4226
Izod Impact, Notched	6.3 J/cm	11.8 ft-lb/in	Method A, Injection Molded, 0.125 in bars, 73°F (23°C); ASTM D256
Izod Impact, Notched	7.21 J/cm	13.5 ft-lb/in	Method A, With Grain - Comp. Molded, 0.125 in bars, 73°F (23°C); ASTM D256
Izod Impact, Notched	8.76 J/cm	16.4 ft-lb/in	Method A, Against Grain - Comp. Molded, 0.125 in bars, 73°F (23°C); ASTM D256
Thermal Properties			
CTE, linear 68°F	72.9 µm/m-°C	40.5 µin/in-°F	ASTM D696
Deflection Temperature at 1.8 MPa (264 psi)	67.8 °C	154 °F	Unannealed, 0.125 in bars; ASTM D648
Flammability, UL94	V-0	V-0	All Colors; 0.035 in.
Flammability, UL94	V-0	V-0	5VA, All Colors; 0.118 in.
Processing Properties			
Melt Temperature	188 - 204 °C	370 - 400 °F	Extrusion
Descriptive Properties			
Cell Classification D1784	15343		ASTM D1784
Cell Classification D4216	14133223		ASTM D4216